

# **Detection of Impersonation In Online Examinations**

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A vertical decorative strip on the left side of the page featuring a complex, abstract geometric pattern composed of numerous white and light gray triangles of varying sizes.

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# Detection of Impersonation In Online Examinations

- ❖ We are living in the era where office work is becoming work from home and examinations are becoming online examinations. In online examinations there is a lot of chance of impersonation. This paper proposes a method to overcome the downside of online examinations which is impersonation.
- ❖ This approach aims in increasing the credibility of online exams and eliminate the need for an examiner so that the exams can be taken from any convenient location. In recent days, the candidate appearing for an online examination is authenticated by carrying out manual verification of the candidate's credentials by the examiner. Conducting an automated face authentication at the beginning of the examination will check the identity of the user.
- ❖ For this type of authentication, we use facial recognition system which uses the Viola-Jones algorithm, and SVM for detection and recognition respectively.

# METHODOLOGY

# MODULES

## ➤ ADMIN

- ❖ Login
- ❖ Student Registration
- ❖ Add Subjects
- ❖ Add Questions & Answers
- ❖ Upload Study Materials
- ❖ Exam scheduling

## ➤ STUDENT

- ❖ Login
- ❖ View Subjects
- ❖ View Study Materials
- ❖ Attend Exam

# Viola-Jones Face Detection Technique

- ❖ Viola-Jones Face Detection Technique, popularly known as Haar Cascades is an Object Detection Algorithm used to identify faces in an image or a real time video.
- ❖ The algorithm uses edge or line detection features proposed by Viola and Jones in their research paper “Rapid Object Detection using a Boosted Cascade of Simple Features” published in 2001.
- ❖ Haar Cascade Detection is one of the oldest yet powerful face detection algorithms invented. It has been there since long, long before Deep Learning became famous. Haar Features were not only used to detect faces, but also for eyes, lips, license number plates etc..
- ❖ Here we slid a small matrix across our image from left-to-right and top-to-bottom, computing an output value for each center pixel of the kernel. we slid a small matrix across our image from left-to-right and top-to-bottom, computing an output value for each center pixel of the kernel.

- ❖ Sliding a fixed size window across the image at multiple scales. At each of these phases, the window stops, computes some features, and then classifies the region as Yes, this region does contain a face, or No, this region does not contain a face.
- ❖ This requires a bit of machine learning. We need a classifier that is trained in using positive and negative samples of a face:
  - Positive data points are examples of regions containing a face
  - Negative data points are examples of regions that do not contain a face.
- ❖ For this OpenCV used to perform face detection out-of-the-box using a pre-trained Haar cascade.
- ❖ OpenCV ensures that we do not need to provide our own positive and negative samples, train our own classifier, or worry about getting the parameters tuned exactly right. Instead, we load the pre-trained classifier(OpenCV) and detect faces in images.

Step 1: Loop over frames from video stream or image

Step2: Read the next frame

Step3: Resize it

Step4: Convert it to grayscale.

Step5: Once the frame has been converted to grayscale, apply the face detector Haar cascade to locate any faces in the input frame

## A. Face Authentication

We use image processing toolbox to perform the face authentication. Just like any other form of biometric identification, face recognition requires samples to be collected, identified, extracted with necessary (features) information, and stored for recognition. The algorithm that is used for face recognition is Viola-Jones algorithm and SVM (Support Vector Machine).

Dlib and openCV packages in python is used for the face recognition algorithm and for image processing. After identifying the face next step is feature extraction. HOG features are extracted from the image and then start comparing with the image in the database to identify whether he/she is a valid user or not. If it matches up to 60% to 70% he/she is a registered user. If it is not satisfying the threshold value he/she is an invalid user.

## B. Online Examination Portal

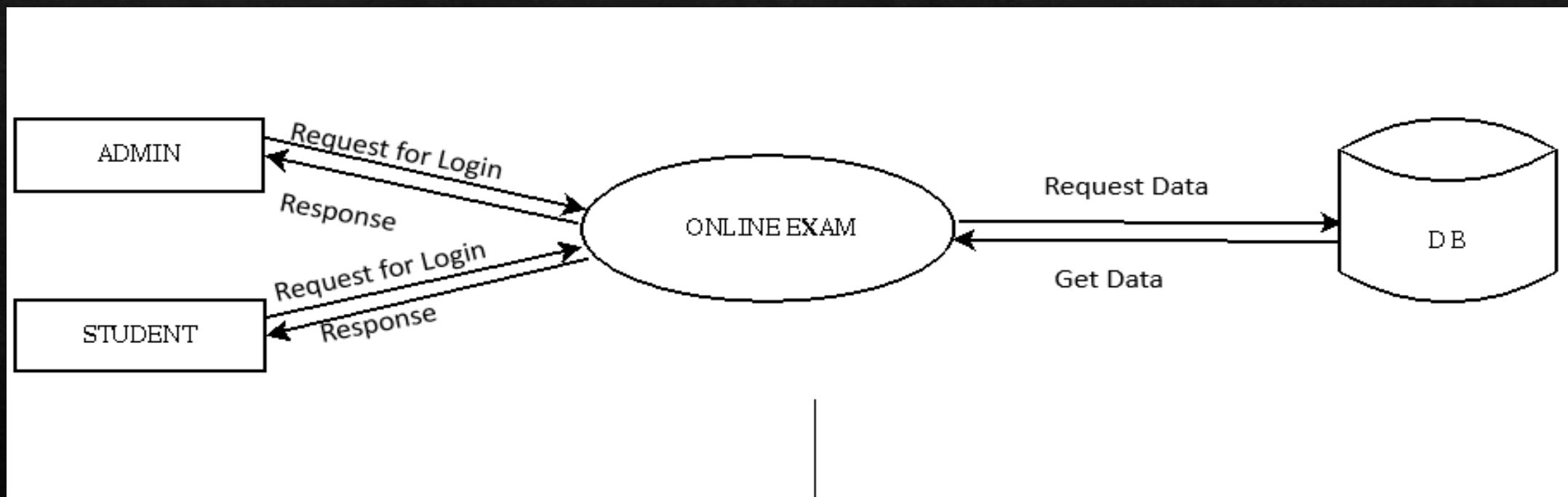
After face authentication, the candidate is provided with the examination on portal which is built using Python where they can download the question paper and write their exam ,after that they can upload the answer scripts

## DEVELOPING ENVIRONMENT

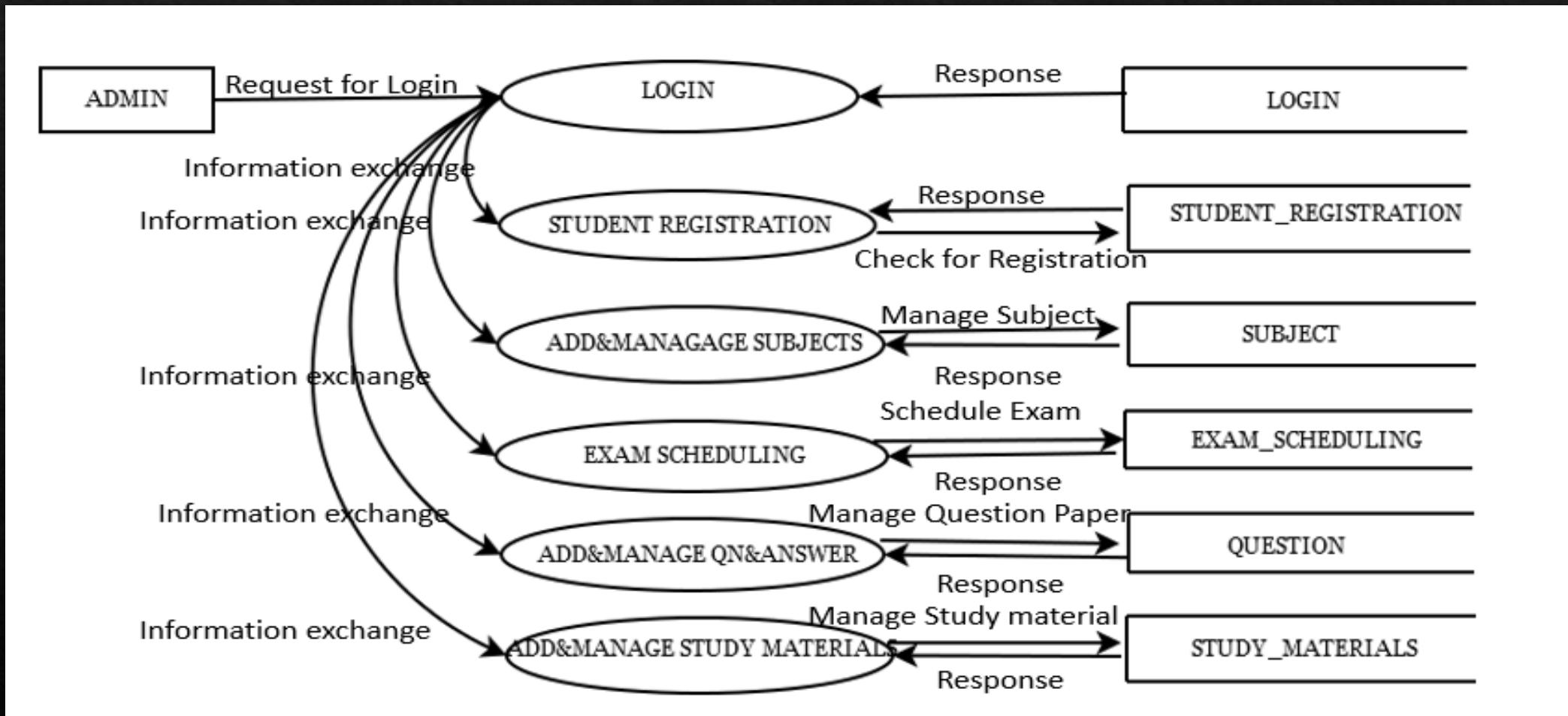
- ❖ OPERATING SYSTEM: WINDOWS 10 AND ABOVE
- ❖ FRONT END: HTML, CSS, JAVASCRIPT
- ❖ BACK END: Mysql
- ❖ SOFTWARES USED: Jetbrains Pycharm, Android Studio ,SQLyog
- ❖ TECHNOLOGY USED: PYTHON, JAVA
- ❖ FRAME WORK USED: Flask

# DATA FLOW DIAGRAM

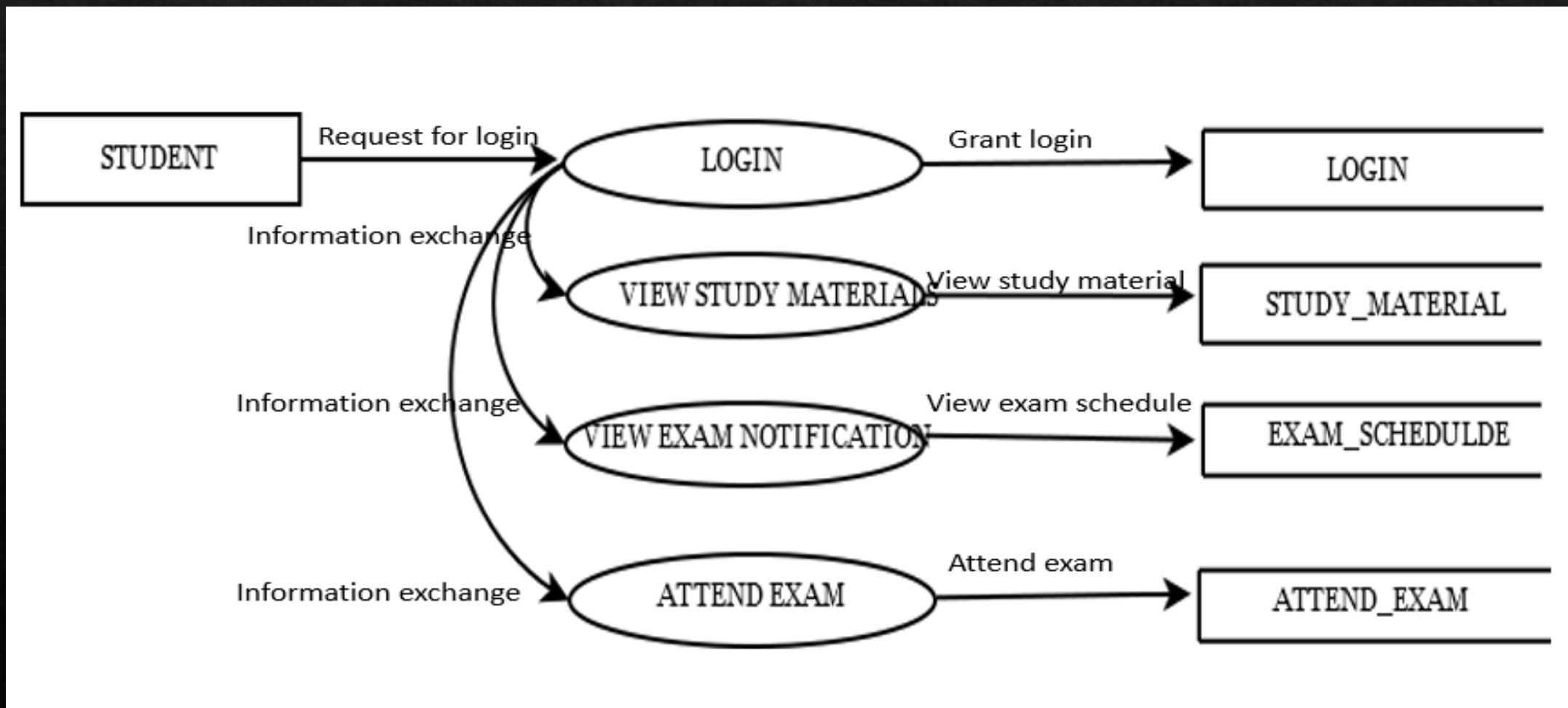
LEVEL 0



## LEVEL 1.1



## LEVEL 1.2



# TABLE DESIGN

## Login

Student

## Subject

## Answer

## Course

# Exam

## Pics

## Study Material

# Future Enhancements

- ❖ Answer Boxes - This feature can be added to the mobile application which will help the students to type answers in the application itself.
- ❖ Encrypting question paper using blockchain.
- ❖ Chat box- live interaction with the faculty.

# USER STORIES

User Story ID	As a type of User	I want to <perform some task>	So that I can <Achieve Some Goal>
1	Admin	login	login successful with correct username and password
2	Admin	student registration management	add student, manage student
3	Admin	add and manage subject	mange subjects
4	Admin	add questions and study materials	manage questions and materials
5	Admin	schedule exam	Create examination portal
6	User	login	login successfully with correct username and password
7	User	view study materials	view study materials in application
8	User	view examination notifications	view notifications
9	User	attend exams	identity verification and face recognition

# PRODUCT BACKLOG

User story ID	Priority <High/Medium/Low>	Size (Hours)	Sprint <#>	Status <Planned/In progress/Completed>	Release Date	Release Goal
1	Medium	2	1	Completed	8/01/2022	Table Design
2	High	3		Completed	8/01/2022	Form Design
3	High	5		Completed	8/01/2022	Basic Coding
4	High	5	2	Completed	22/01/2022	Face Recognition
5	Medium	5		Completed	22/02/2022	SVM algorithm to Classify the Faces in the Database
6	High	5	3	Completed	5/02/2022	Provide Online Examination Portal
8	Medium	5	4	Completed	20/02/2022	Testing Data
9	High	5		Completed	20/02/2022	Output Generation

# PROJECT PLAN

User Story ID	Task Name	Start Date	End Date	Hours	Status
1	Sprint 1	26/12/2021	28/12/2021	10	Completed
2		29/12/2021	31/12/2021		Completed
3		3/01/2022	8/01/2022		Completed
4	Sprint 2	9/01/2022	16/01/2022	13	Completed
5		18/01/2022	22/01/2022		Completed
6	Sprint 3	23/01/2022	27/01/2022	12	Completed
7		30/01/2022	5/02/2022		Completed
8	Sprint 4	6/02/2022	10/02/2022	9	Completed
9		16/02/2022	20/02/2022		Completed

# SPRINT BACKLOG PLAN

Backlog Item	Status And Completion Date	Original Estimation in Hours	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
UserStory#1,#2,#3			hrs	hrs	hrs	hrs	hrs									
Table Designing	28/12/2021	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Form Designing	31/12/2021	3	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Coding	8/01/2022	5	0	0	0	0	0	1	1	1	1	1	0	0	0	0
UserStory#4, #5																
Face Recognition	16/01/2022	5	1	1	0	1	1	1	0	0	0	0	0	0	0	0
Identity Verification	22/01/2022	5	0	0	0	0	0	0	0	1	1	0	1	1	1	0
UserStory#6,#7																
Online Examination Portal	27/01/2022	5	1	1	1	0	1	1	0	0	0	0	0	0	0	0
UserStory#8,#9																
Testing Data	10/02/2022	10	1	1	1	1	1	0	0	1	1	1	1	1	0	0
Output Generation	20/02/2022	9	0	0	2	1	1	0	2	2	1	0	0	0	0	0
Total		44	4	4	5	4	5	3	3	5	4	2	2	2	1	0

Sprint Actual																
Backlog Item	Status And Completion Date	Original Estimation in Hours	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
UserStory#1,#2,#3			hrs	hrs	hrs	hrs	hrs									
Table Designing	28/12/2021	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Form Designing	31/12/2021	4	0	0	0	1	1	0	1	1	0	0	0	0	0	0
Coding	8/01/2022	4	0	0	0	0	0	0	0	0	2	1	1	0	0	0
UserStory#4, #5																
Face Recognition	16/01/2022	10	2	1	1	0	1	1	1	0	1	1	0	1	0	0
Identity Verification	25/01/2022	10	1	1	0	1	1	0	0	1	2	0	0	1	1	1
UserStory#6,#7																
Online Examination Portal	27/01/2022	5	1	0	0	0	1	1	1	0	0	0	1	0	0	0
UserStory#8,#9																
Testing Data	11/02/2022	10	1	1	1	0	0	1	1	1	0	0	1	1	1	1
Output Generation	20/02/2022	5	0	1	1	1	1	1	0	0	0	0	0	0	0	0
Total		50	6	5	3	3	5	4	4	3	5	2	3	3	2	2



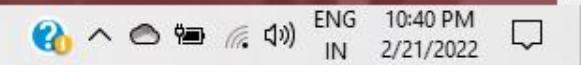
# ONLINE EXAMINATION

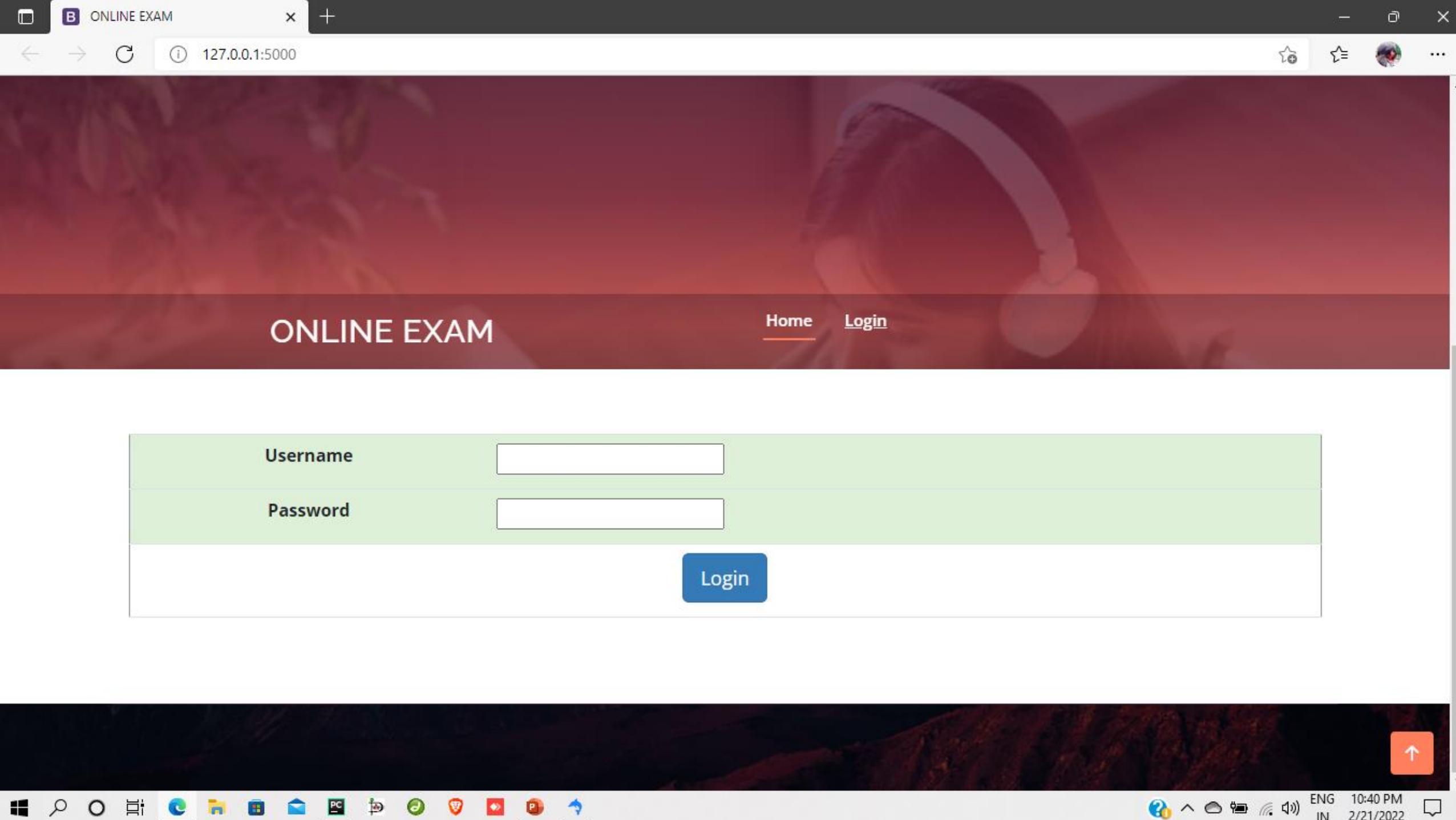
DETECTION OF IMPERSONATION IN ONLINE EXAMINATION

ONLINE EXAM

Home

Login





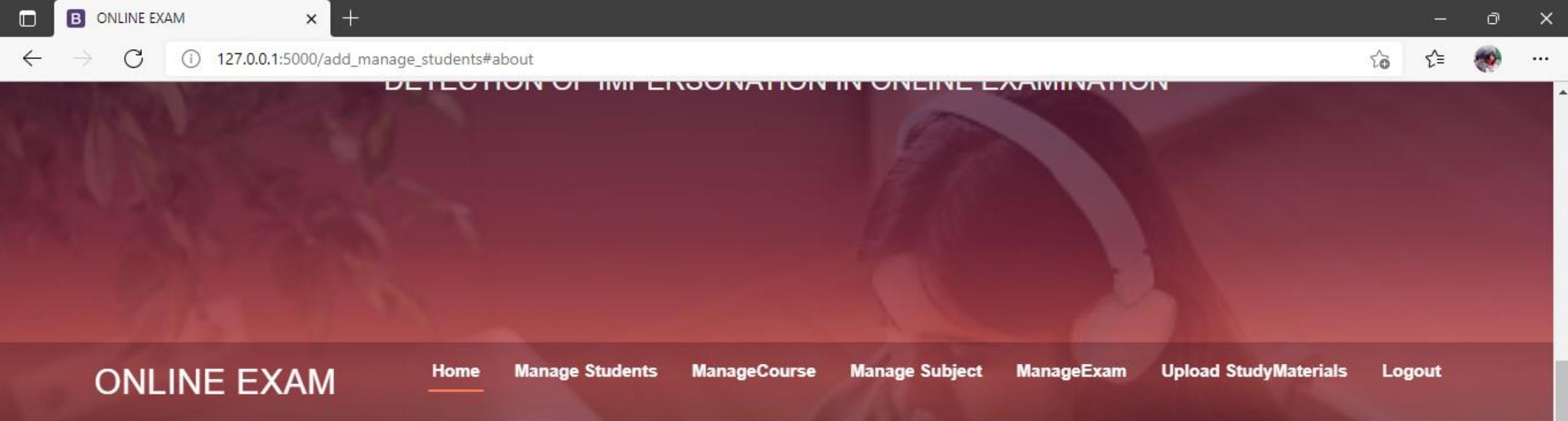
## ONLINE EXAM

[Home](#)[Login](#)

Username

Password

[Login](#)



Course  Semester

Name

Gender

DOB

Address

Phone

Email



57% 10:46 pm

## ONLINE EXAM



anjana

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LOGIN



57% 10:46 pm

## ONLINE EXAM



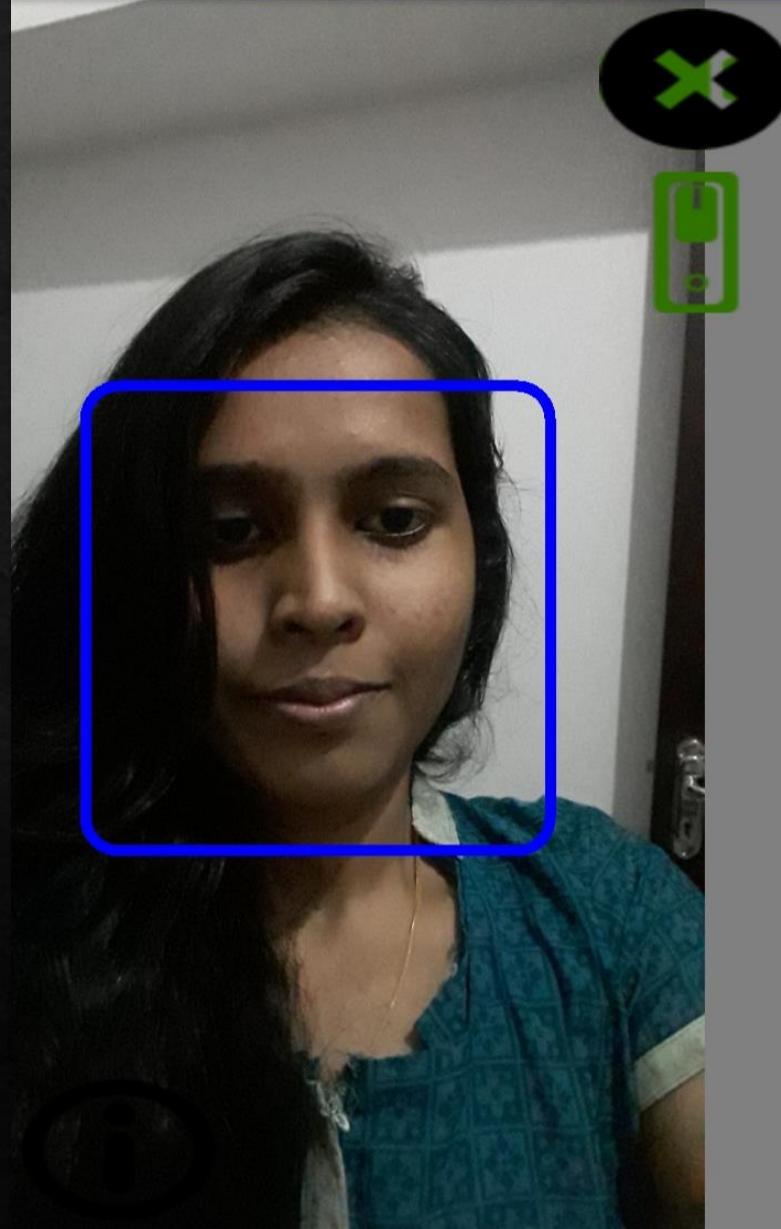
VIEW STUDY  
MATERIAL

ATTEND EXAM

VIEW SUBJECTS

LOGOUT

ONLINE EXAM



THANK YOU